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## (54) SOFT MAGNETIC THIN FILM

### (57)Abstract:

PURPOSE: To prepare a high saturated magnetic flux density soft magnetic thin film capable of holding a higher permeability up to a high frequency region by alternately laminating a magnetic layer chiefly including Fe and a high electric resistance magnetic layer without interposing non-magnetic layer therebetween.

CONSTITUTION: An alternate laminate film is prepared by alternately sputtering a composite target where a ceramics chip is disposed on a ferromagnetic target such as Fe and an Fe-based alloy target in an argon atmosphere including nitrogen. The resulting film provides a multi-layered structure composed of a composite dispersion film having a higher electric resistance and of a Fe-based alloy nitride film having a higher saturated magnetic flux density. Hereby, there is ensured a soft magnetic thin film having a higher saturated magnetic flux density which film is capable of keeping a higher permeability up to a high frequency region without being heat-treated after the film formation.

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